Data Quality

Introduction

Develop SQL Server scripts for data profiling to assess data completeness.

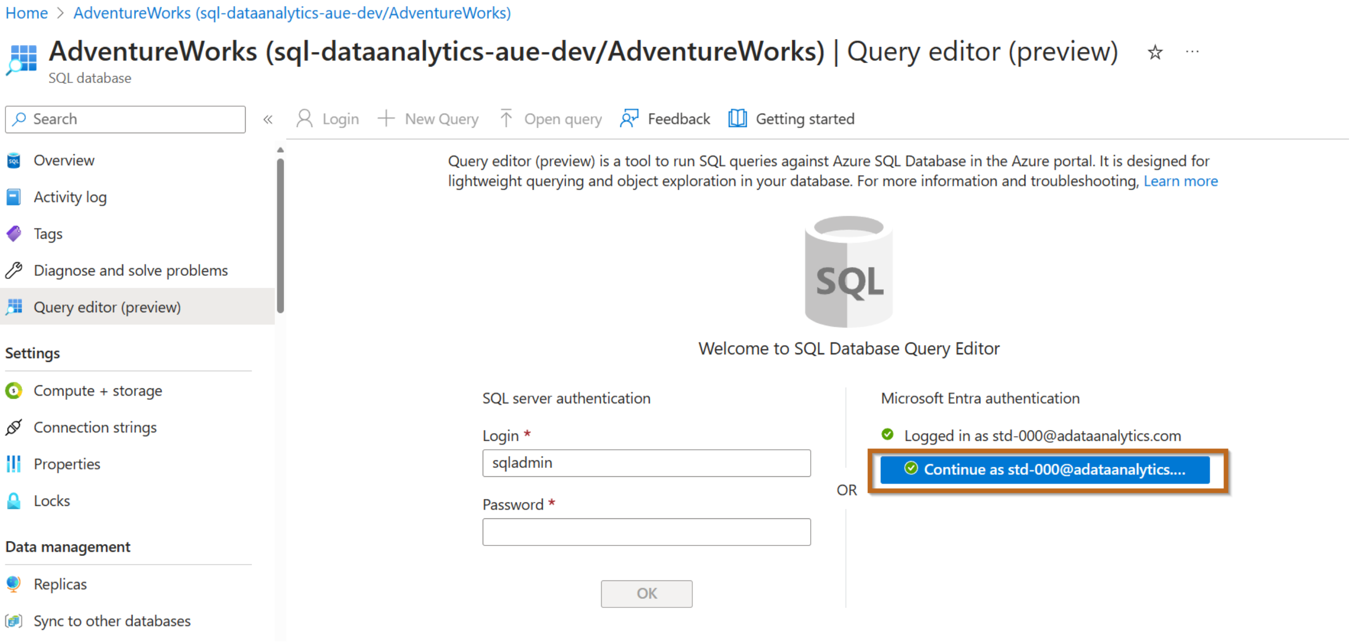
Duration: 10 to 15 minutes

Data Profiling

```
Provide a SQL Server Scripts that scans all the columns with a loop in the table
DimCustomer in the schema dbo. For each column. this query needs to capture the
number of null values, empty values and number of rows. Make sure you include the
schema name as part of querying the tables.
```

Execute the query in the following server: https://portal.azure.com/#@davidalzamendi.com/resource/subscriptions/b28149e7-f6d0-4008-adda-168958c87bc4/resourceGroups/rg-dataanalytics-dev-001/providers/Microsoft.Sql/servers/sql-dataanalytics-aue-dev/databases/AdventureWorks/queryEditor

Connect to the database.



Home > AdventureWorks (sql-dataanalytics-aue-dev/AdventureWorks)

AdventureWorks (sql-dataanalytics-aue-dev/AdventureWorks) | Query editor (preview)

SQL database

Query editor (preview) is a tool to run SQL queries against Azure SQL Database in the Azure portal. It is designed for lightweight querying and object exploration in your database. For more information and troubleshooting, Learn more

Welcome to SQL Database Query Editor

SQL server authentication

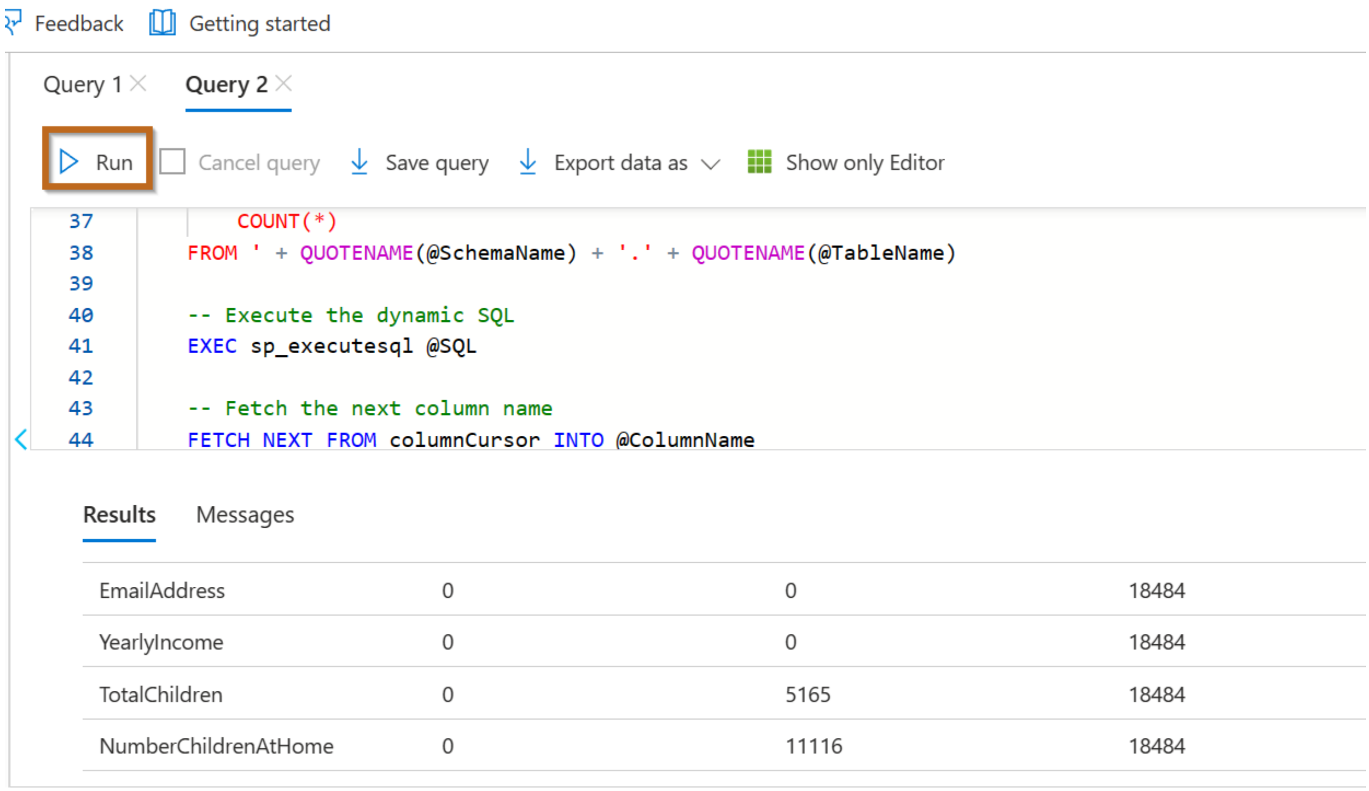
Login * sqladmin

Password *

Microsoft Entra authentication

Logged in as std-000@adataanalytics.com

Paste the query and execute it:



```
    COUNT(*)
FROM ' + QUOTENAME(@SchemaName) + '.' + QUOTENAME(@TableName)

-- Execute the dynamic SQL
EXEC sp_executesql @SQL

-- Fetch the next column name
FETCH NEXT FROM columnCursor INTO @ColumnName
```

EmailAddress	0	0	18484
YearlyIncome	0	0	18484
TotalChildren	0	5165	18484
NumberChildrenAtHome	0	11116	18484

Does the query works? If it does not work, clear the chat and try again.

ChatGPT could provide incorrect T-SQL code due to ambiguity in the prompt, lack of context, limitations in its training data, or misunderstanding language nuances. Reviewing and refining the generated code with expertise in SQL programming can help mitigate inaccuracies.

If after two or three attempts it does not work, try the following query generated by chat-gpt3.

```
-- Declare variables
DECLARE @SchemaName NVARCHAR(128) = 'dbo'
DECLARE @TableName NVARCHAR(128) = 'DimCustomer'
DECLARE @ColumnName NVARCHAR(128)
DECLARE @SQL NVARCHAR(MAX)

-- Create a temporary table to store the results
CREATE TABLE #ColumnStats (
    ColumnName NVARCHAR(128),
    NumNullValues INT,
    NumEmptyValues INT,
    NumRows INT
)

-- Declare a cursor to iterate through the columns
DECLARE columnCursor CURSOR FOR
SELECT COLUMN_NAME
FROM INFORMATION_SCHEMA.COLUMNS
WHERE TABLE_SCHEMA = @SchemaName
    AND TABLE_NAME = @TableName

-- Open the cursor
```

```
OPEN columnCursor

-- Fetch the first column name
FETCH NEXT FROM columnCursor INTO @ColumnName

-- Loop through each column
WHILE @@FETCH_STATUS = 0
BEGIN
    -- Generate the dynamic SQL to get column stats
    SET @SQL = N'
    INSERT INTO #ColumnStats (ColumnName, NumNullValues, NumEmptyValues, NumRows)
    SELECT ''' + @ColumnName + ''',
        SUM(CASE WHEN ' + QUOTENAME(@ColumnName) + ' IS NULL THEN 1 ELSE 0 END),
        SUM(CASE WHEN ' + QUOTENAME(@ColumnName) + ' = '''' THEN 1 ELSE 0 END),
        COUNT(*)
    FROM ' + QUOTENAME(@SchemaName) + '.' + QUOTENAME(@TableName)

    -- Execute the dynamic SQL
    EXEC sp_executesql @SQL

    -- Fetch the next column name
    FETCH NEXT FROM columnCursor INTO @ColumnName
END

-- Close and deallocate the cursor
CLOSE columnCursor
DEALLOCATE columnCursor

-- Select the results
SELECT * FROM #ColumnStats

-- Drop the temporary table
DROP TABLE #ColumnStats
```

Real Life Scenarios

In real life, this script will run on a daily or weekly basis and capture the information into a group of tables. Then, the information will be made available in a reporting tool like Power BI and accessible to as many subject matter experts (SMEs) as possible. This includes, but is not limited to, IT, business users, and leadership, ensuring they are aware of the current state of the data. This process helps secure funding and raises awareness.

Prompting Table and Stored Procedure Structures

While you will not create the tables, the model is able to read the results beforehand, so it could ask for the structure of tables where the information needs to be stored.

```
By taking into account the query before, give me the table structure where the
information needs to be stored and a stored procedure that will run the query
above.
```